Fig. 1A
PRIOR ART

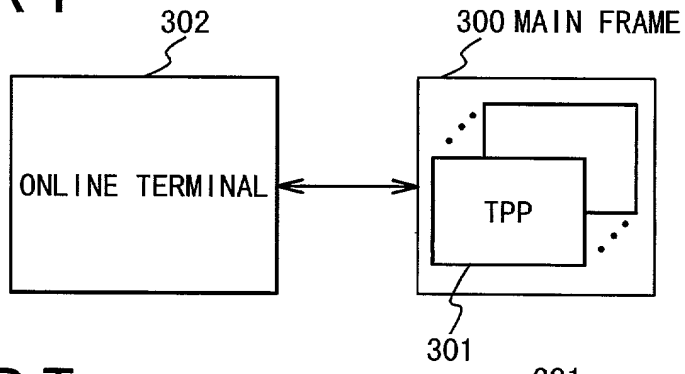


Fig. 1B
PRIOR ART

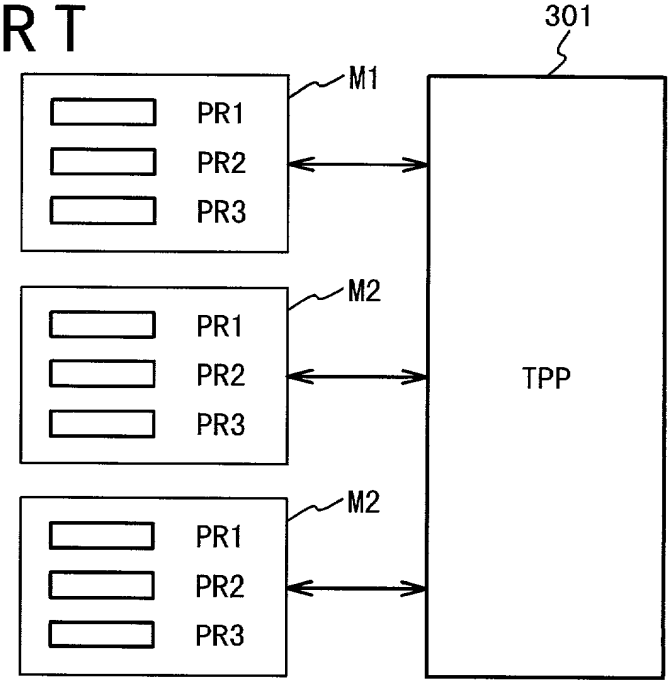


Fig. 1C
PRIOR ART

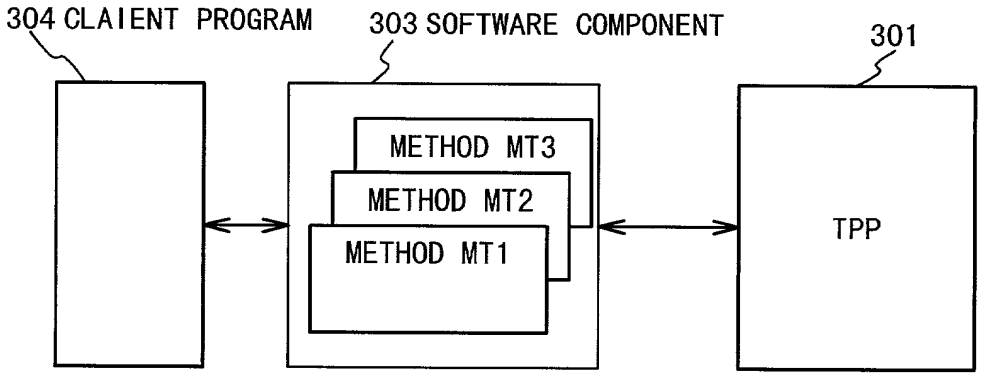


Fig. 2

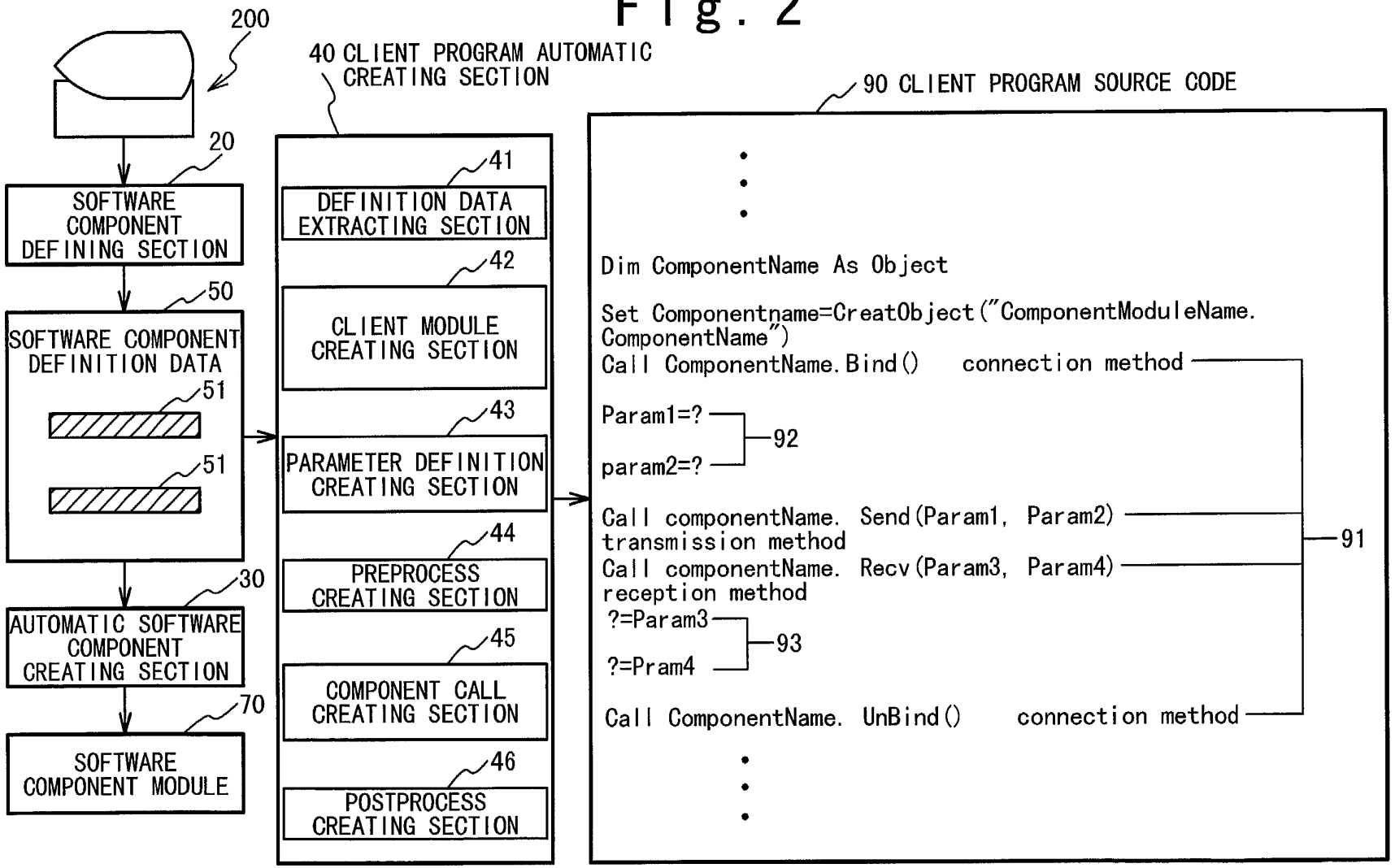

200
40 CLIENT PROGRAM AUTOMATIC CREATING SECTION
90 CLIENT PROGRAM SOURCE CODE
20
SOFTWARE COMPONENT DEFINING SECTION
50
SOFTWARE COMPONENT DEFINITION DATA
51
51
30
AUTOMATIC SOFTWARE COMPONENT CREATING SECTION
70
SOFTWARE COMPONENT MODULE
41
DEFINITION DATA EXTRACTING SECTION
42
CLIENT MODULE CREATING SECTION
43
PARAMETER DEFINITION CREATING SECTION
44
PREPROCESS CREATING SECTION
45
COMPONENT CALL CREATING SECTION
46
POSTPROCESS CREATING SECTION
Dim ComponentName As Object
Set Componentname=CreatObject("ComponentModuleName.ComponentName")
Call ComponentName.Bind() connection method
Param1=?
param2=?
92
Call componentName. Send(Param1, Param2)
transmission method
Call componentName. Recv(Param3, Param4)
reception method
91
?=Param3
?=Pram4
93
Call ComponentName. UnBind() connection method

Fig. 3

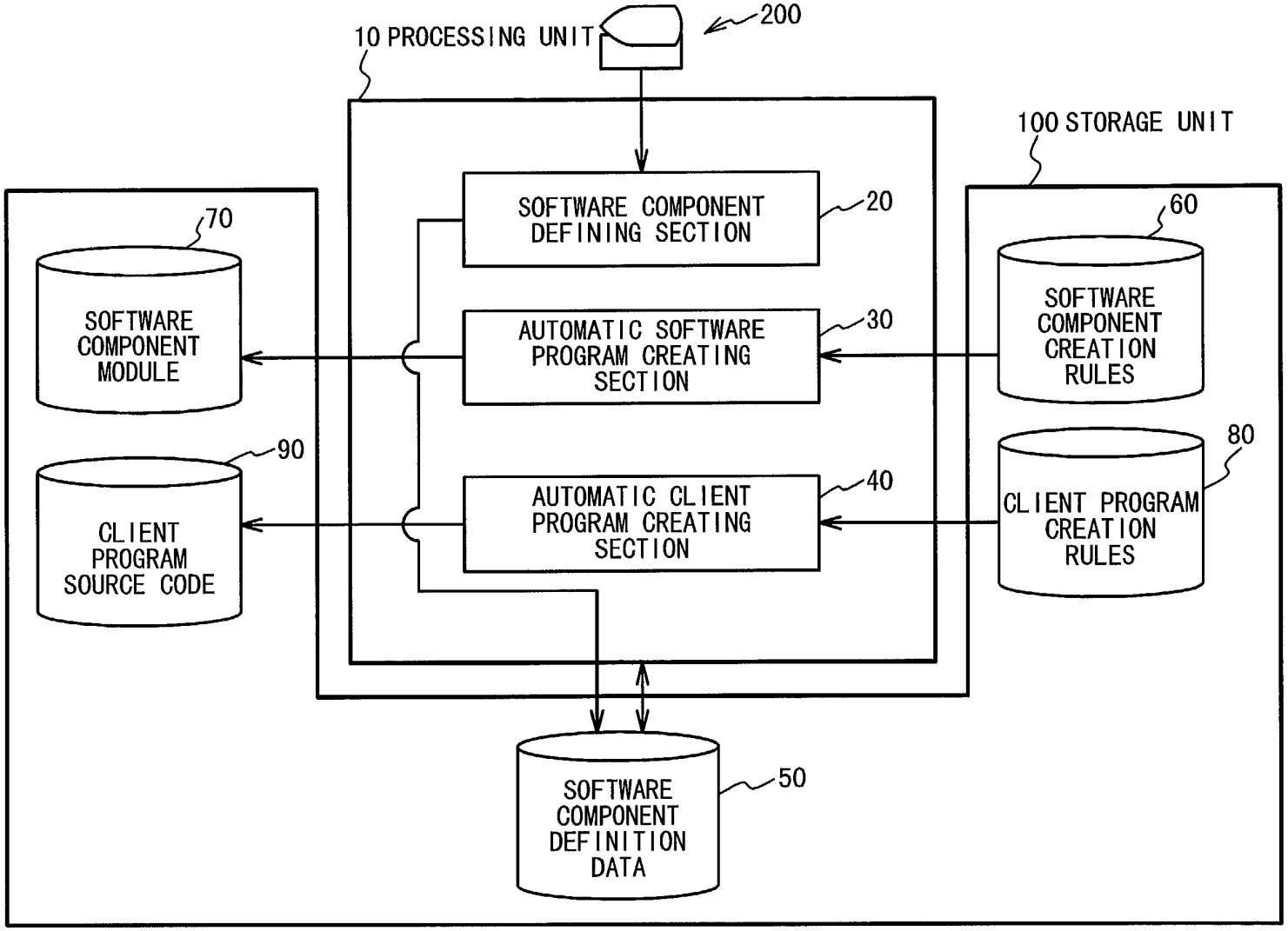
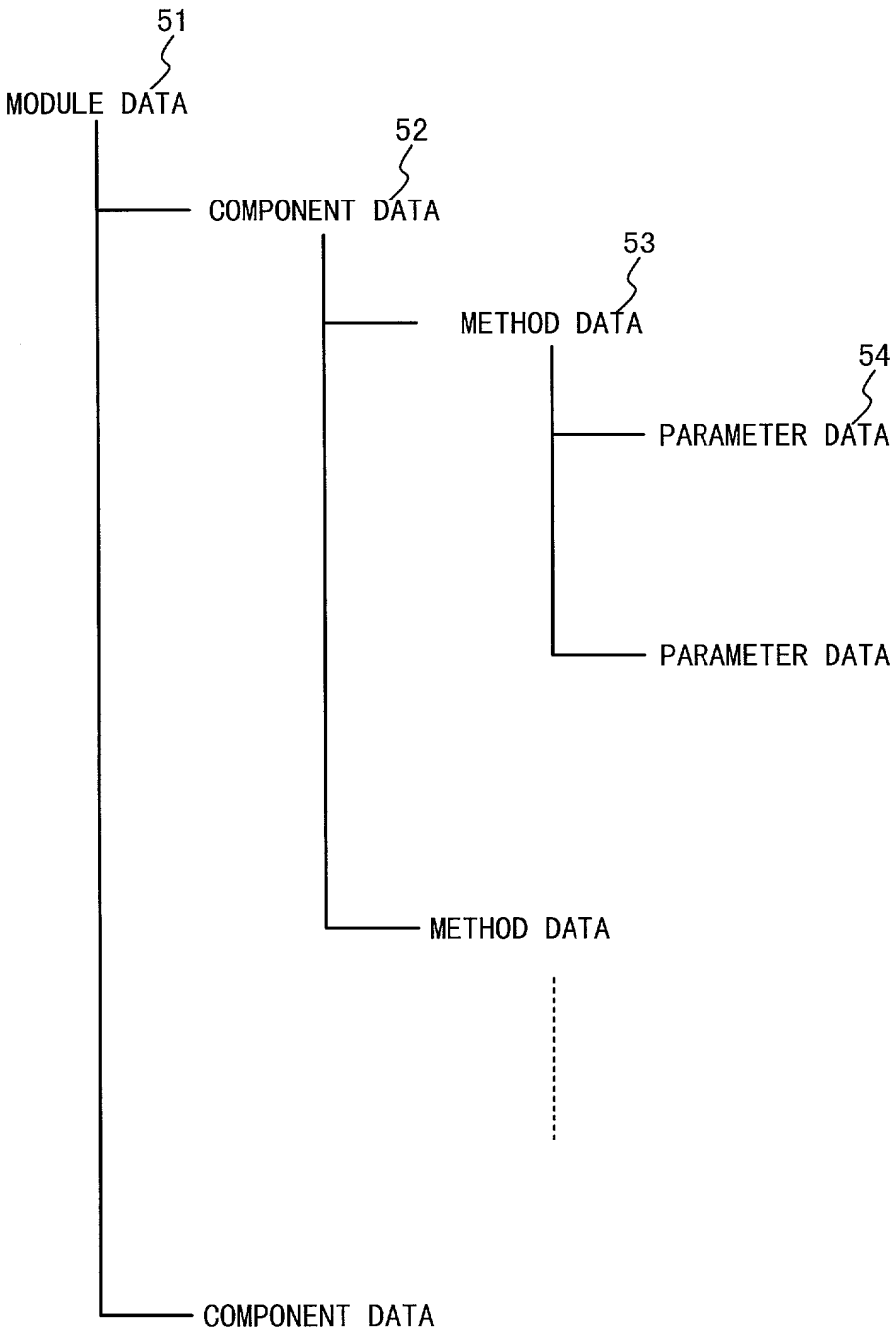

10 PROCESSING UNIT
200
100 STORAGE UNIT
SOFTWARE COMPONENT DEFINING SECTION
20
AUTOMATIC SOFTWARE PROGRAM CREATING SECTION
30
AUTOMATIC CLIENT PROGRAM CREATING SECTION
40
70
SOFTWARE COMPONENT MODULE
90
CLIENT PROGRAM SOURCE CODE
60
SOFTWARE COMPONENT CREATION RULES
80
CLIENT PROGRAM CREATION RULES
50
SOFTWARE COMPONENT DEFINITION DATA

Fig. 4



Patent Application Publication

Fig. 5

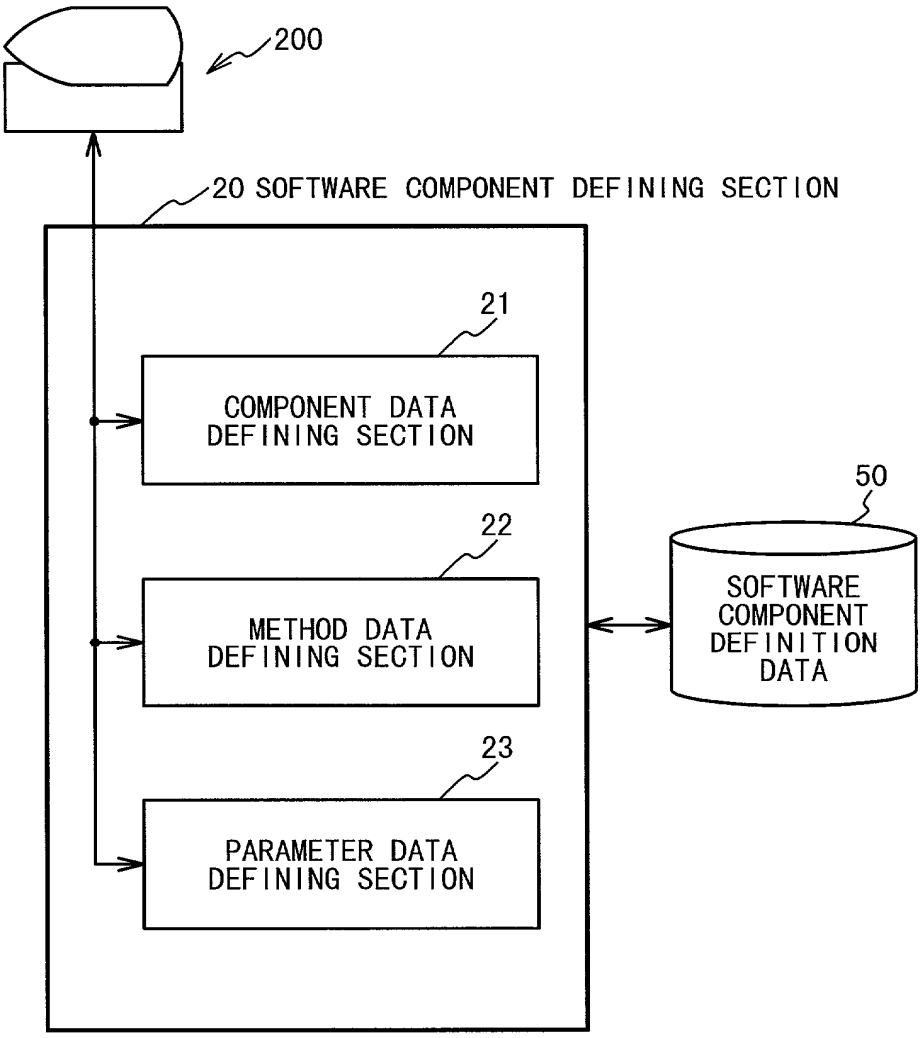

200
20 SOFTWARE COMPONENT DEFINING SECTION
21
COMPONENT DATA DEFINING SECTION
22
METHOD DATA DEFINING SECTION
23
PARAMETER DATA DEFINING SECTION
50
SOFTWARE COMPONENT DEFINITION DATA

Fig. 6A

MODULE DATA 51

MODULE NAME･･･511

Fig. 6B

COMPONENT DATA 52

COMPONENT NAME･･･521

COMPONENT ATTRIBUTE DATA･･･522

Fig. 6C

METHOD DATA 53

METHOD NAME･･･531

METHOD ATTRIBUTE DATA･･･532

METHOD CALLING FORMAT DATA･･･533

METHOD CALL ORDER DATA･･･534

Fig. 6D

PARAMETER DATA 54

PARAMETER NAME･･･541

PARAMETER TYPE･･･542

PARAMETER INPUT/OUTPUT TYPE DATA･･･543

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Fig. 7

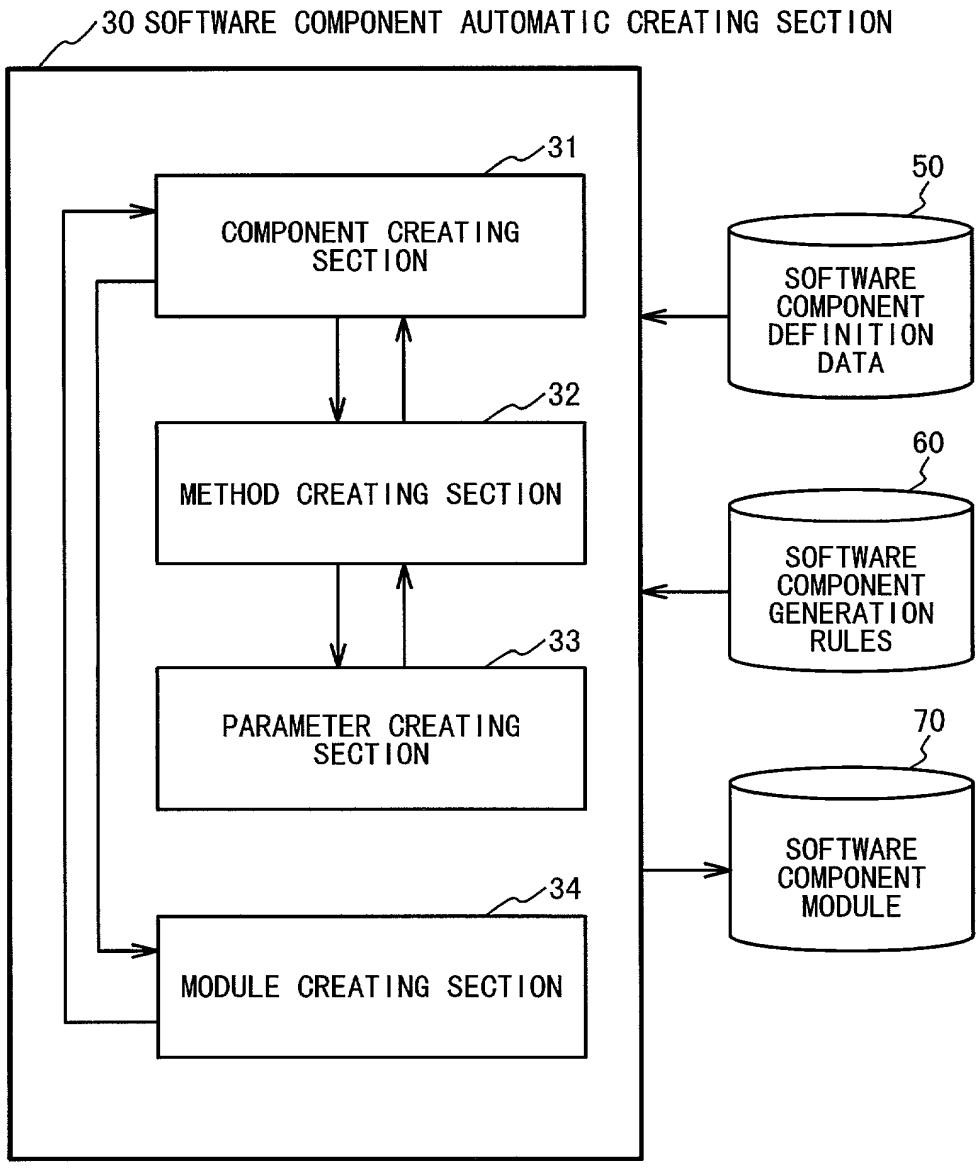

30 SOFTWARE COMPONENT AUTOMATIC CREATING SECTION
31
COMPONENT CREATING SECTION
32
METHOD CREATING SECTION
33
PARAMETER CREATING SECTION
34
MODULE CREATING SECTION
50
SOFTWARE COMPONENT DEFINITION DATA
60
SOFTWARE COMPONENT GENERATION RULES
70
SOFTWARE COMPONENT MODULE

Fig. 8

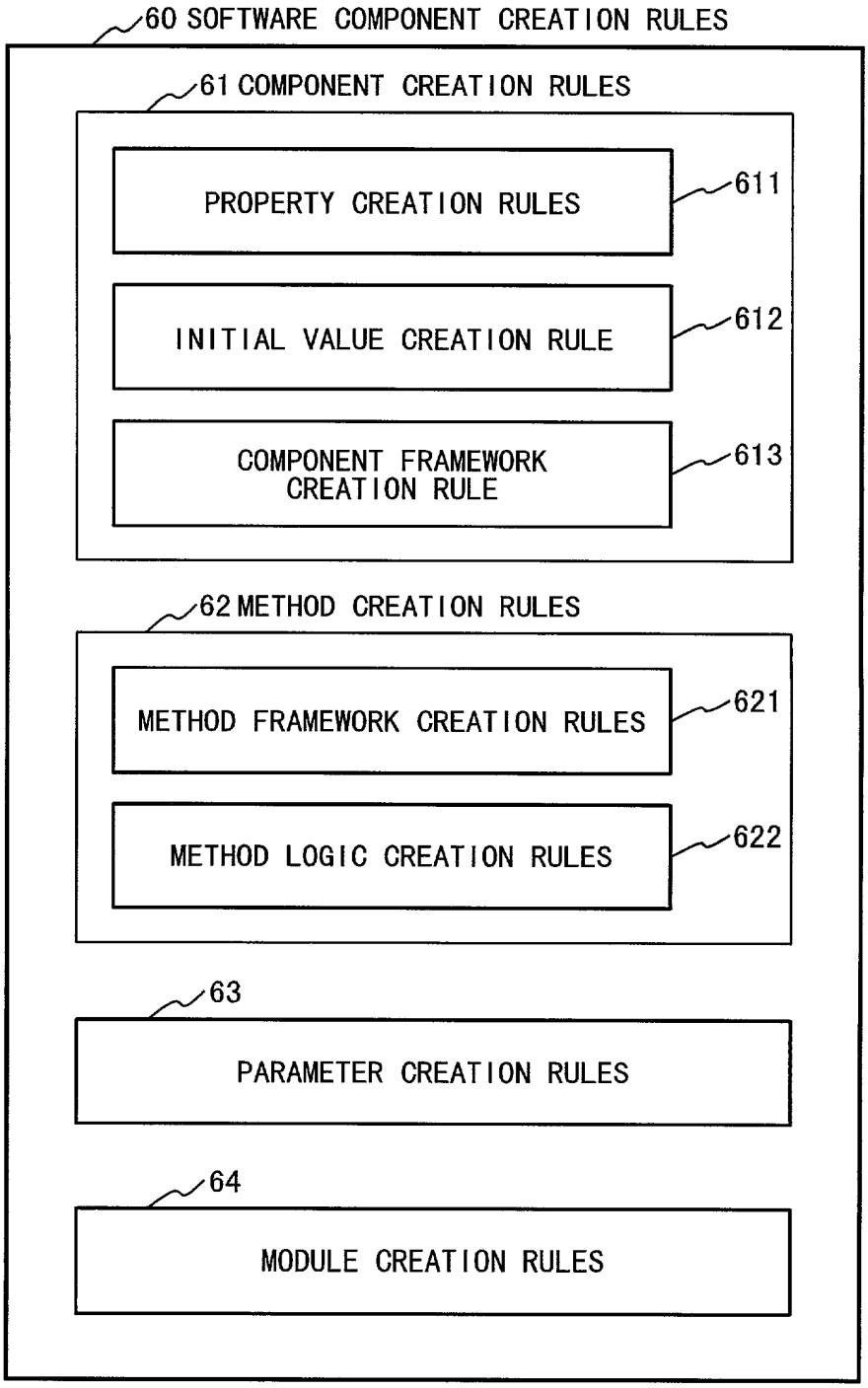

60 SOFTWARE COMPONENT CREATION RULES
61 COMPONENT CREATION RULES
PROPERTY CREATION RULES
611
INITIAL VALUE CREATION RULE
612
COMPONENT FRAMEWORK CREATION RULE
613
62 METHOD CREATION RULES
METHOD FRAMEWORK CREATION RULES
621
METHOD LOGIC CREATION RULES
622
63
PARAMETER CREATION RULES
64
MODULE CREATION RULES

Fig. 9

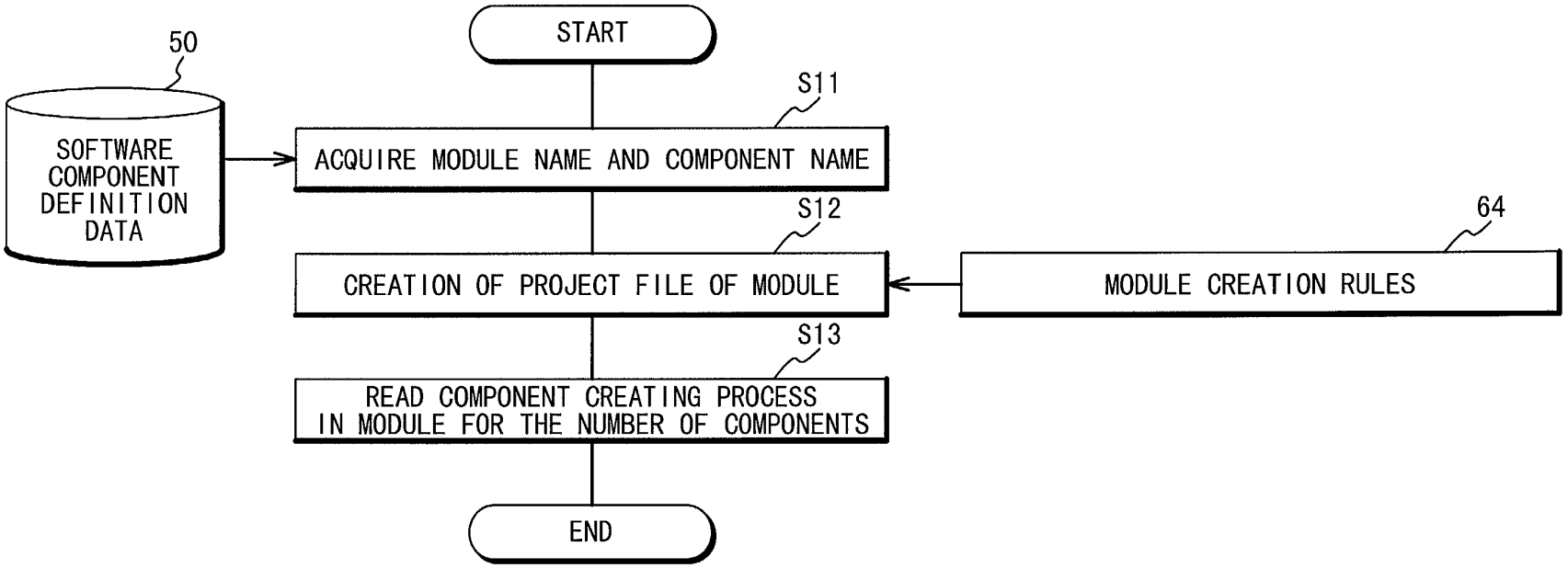

START
50
SOFTWARE COMPONENT DEFINITION DATA
S11
ACQUIRE MODULE NAME AND COMPONENT NAME
S12
64
CREATION OF PROJECT FILE OF MODULE
MODULE CREATION RULES
S13
READ COMPONENT CREATING PROCESS IN MODULE FOR THE NUMBER OF COMPONENTS
END

Fig. 10

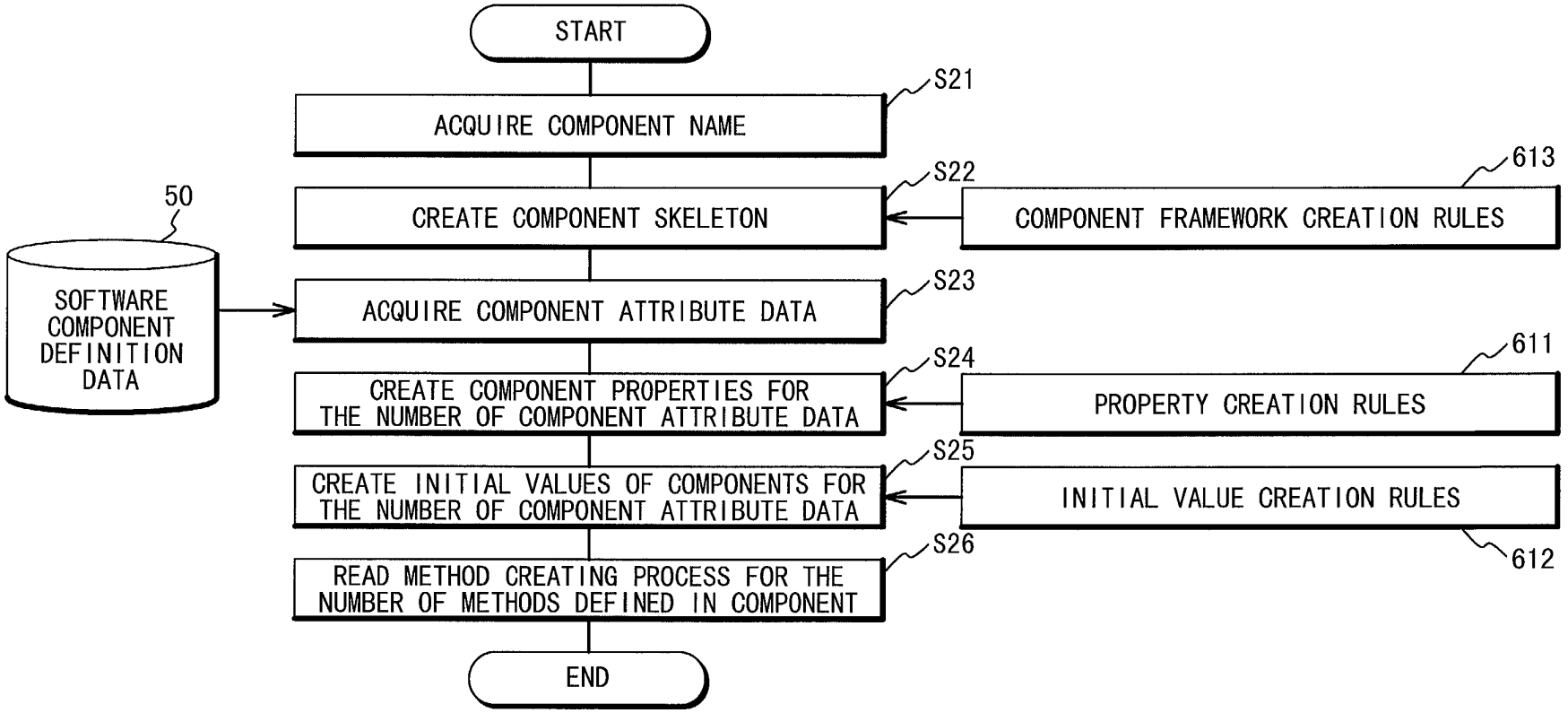

START
S21
ACQUIRE COMPONENT NAME
S22
CREATE COMPONENT SKELETON
613
COMPONENT FRAMEWORK CREATION RULES
50
SOFTWARE COMPONENT DEFINITION DATA
S23
ACQUIRE COMPONENT ATTRIBUTE DATA
S24
CREATE COMPONENT PROPERTIES FOR THE NUMBER OF COMPONENT ATTRIBUTE DATA
611
PROPERTY CREATION RULES
S25
CREATE INITIAL VALUES OF COMPONENTS FOR THE NUMBER OF COMPONENT ATTRIBUTE DATA
INITIAL VALUE CREATION RULES
612
S26
READ METHOD CREATING PROCESS FOR THE NUMBER OF METHODS DEFINED IN COMPONENT
END

Fig. 11

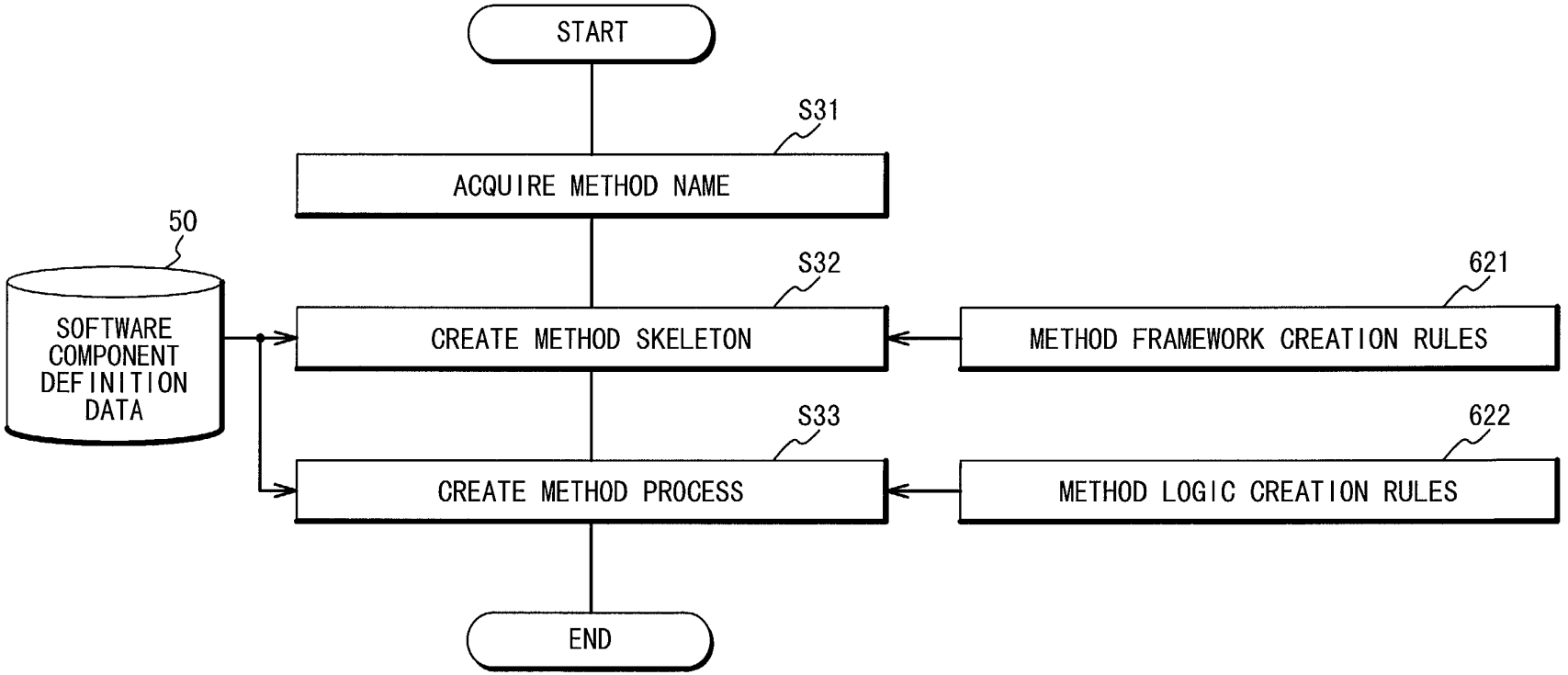

START
S31
ACQUIRE METHOD NAME
50
SOFTWARE COMPONENT DEFINITION DATA
S32
CREATE METHOD SKELETON
621
METHOD FRAMEWORK CREATION RULES
S33
CREATE METHOD PROCESS
622
METHOD LOGIC CREATION RULES
END

Fig. 12

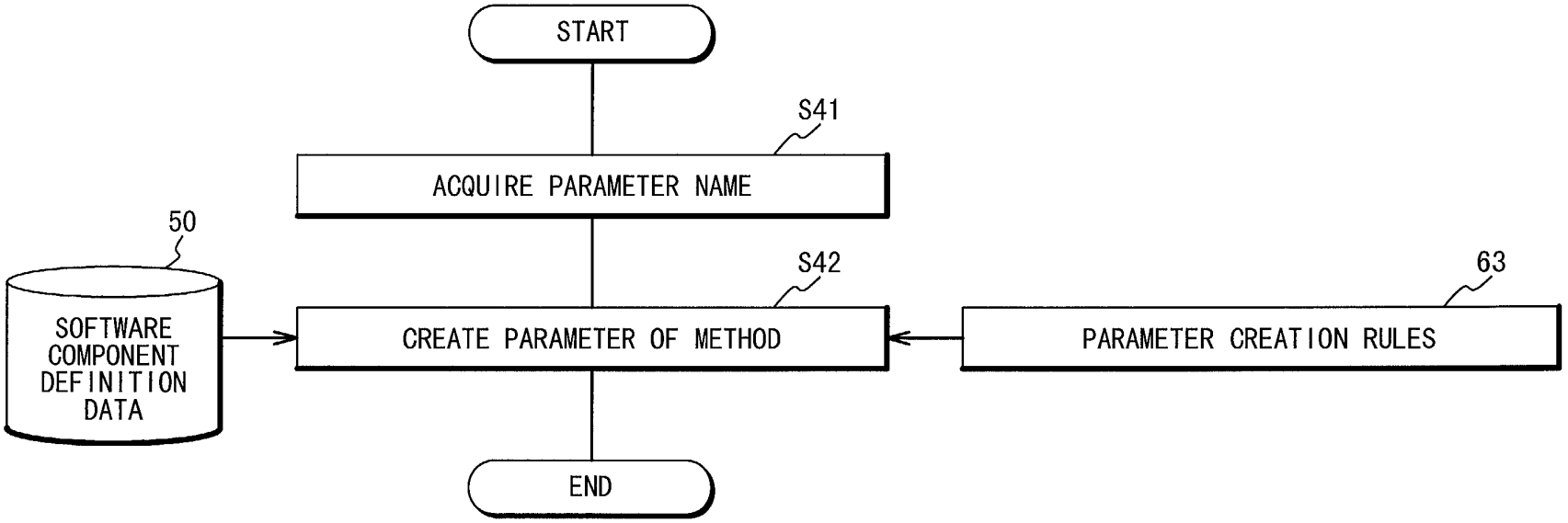

START
S41
ACQUIRE PARAMETER NAME
50
S42
63
SOFTWARE COMPONENT DEFINITION DATA
CREATE PARAMETER OF METHOD
PARAMETER CREATION RULES
END

Fig. 13

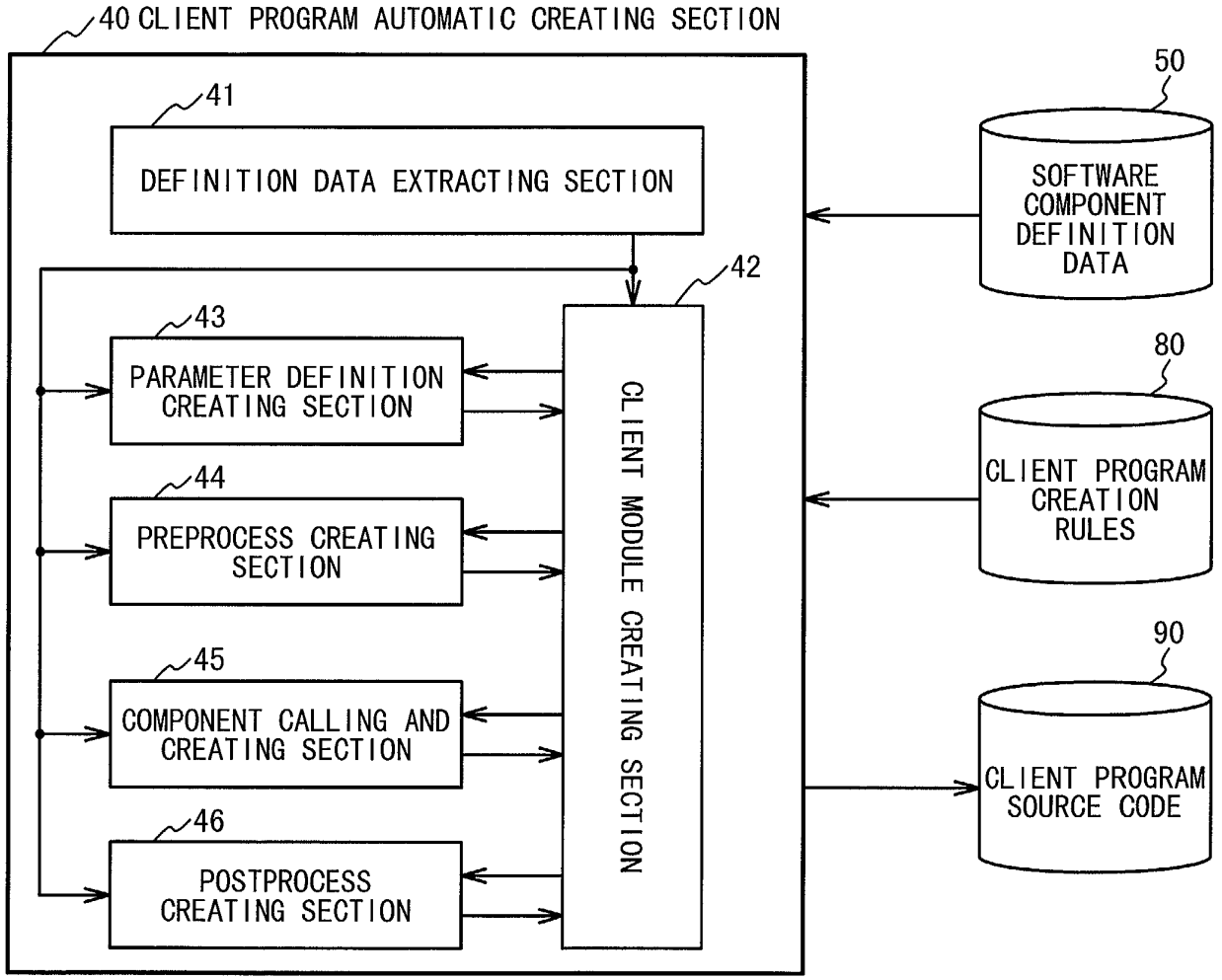

40 CLIENT PROGRAM AUTOMATIC CREATING SECTION
41
DEFINITION DATA EXTRACTING SECTION
42
43
PARAMETER DEFINITION CREATING SECTION
44
PREPROCESS CREATING SECTION
45
COMPONENT CALLING AND CREATING SECTION
46
POSTPROCESS CREATING SECTION
CLIENT MODULE CREATING SECTION
50
SOFTWARE COMPONENT DEFINITION DATA
80
CLIENT PROGRAM CREATION RULES
90
CLIENT PROGRAM SOURCE CODE

Fig. 14

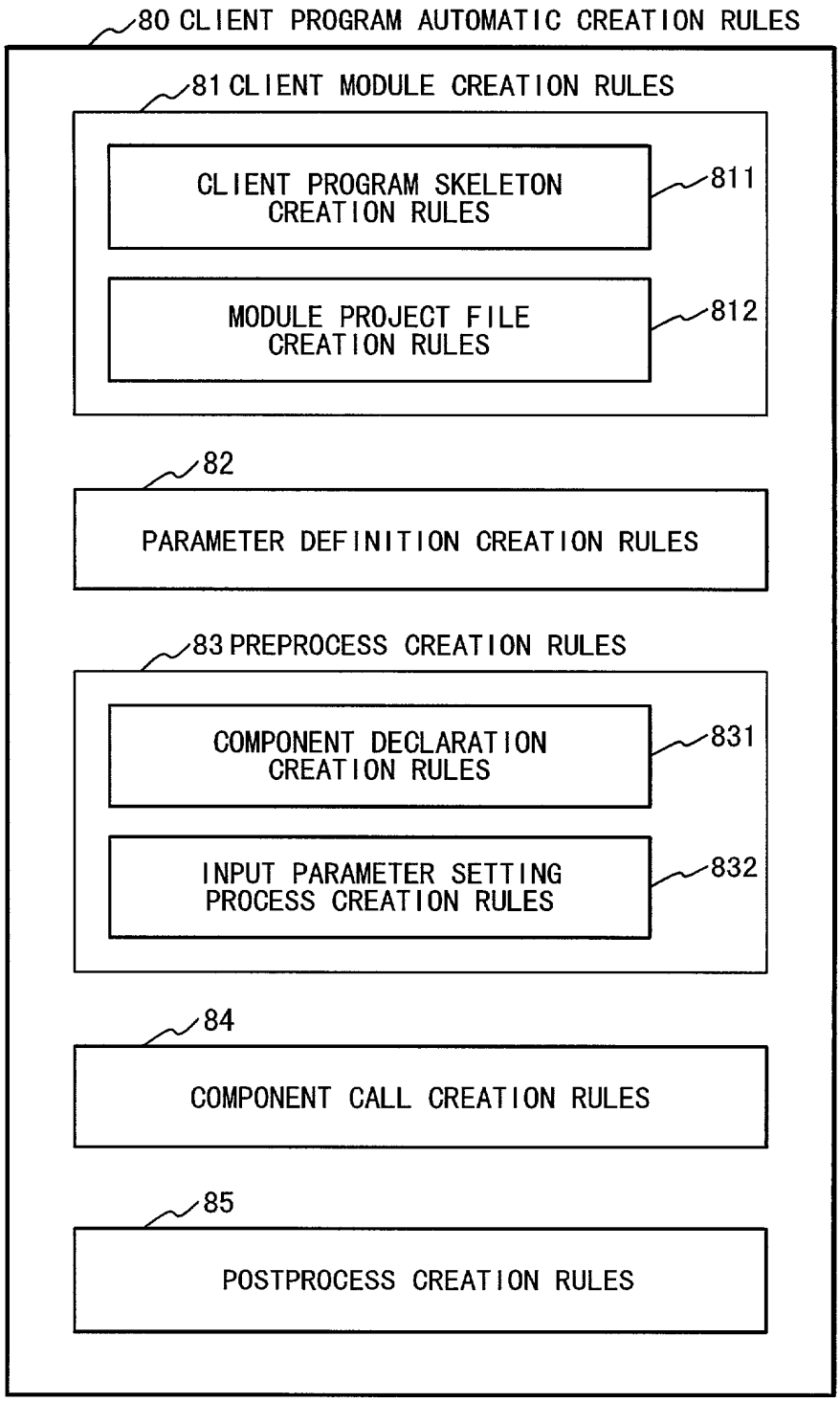

80 CLIENT PROGRAM AUTOMATIC CREATION RULES
81 CLIENT MODULE CREATION RULES
CLIENT PROGRAM SKELETON CREATION RULES
811
MODULE PROJECT FILE CREATION RULES
812
82
PARAMETER DEFINITION CREATION RULES
83 PREPROCESS CREATION RULES
COMPONENT DECLARATION CREATION RULES
831
INPUT PARAMETER SETTING PROCESS CREATION RULES
832
84
COMPONENT CALL CREATION RULES
85
POSTPROCESS CREATION RULES

Fig. 15

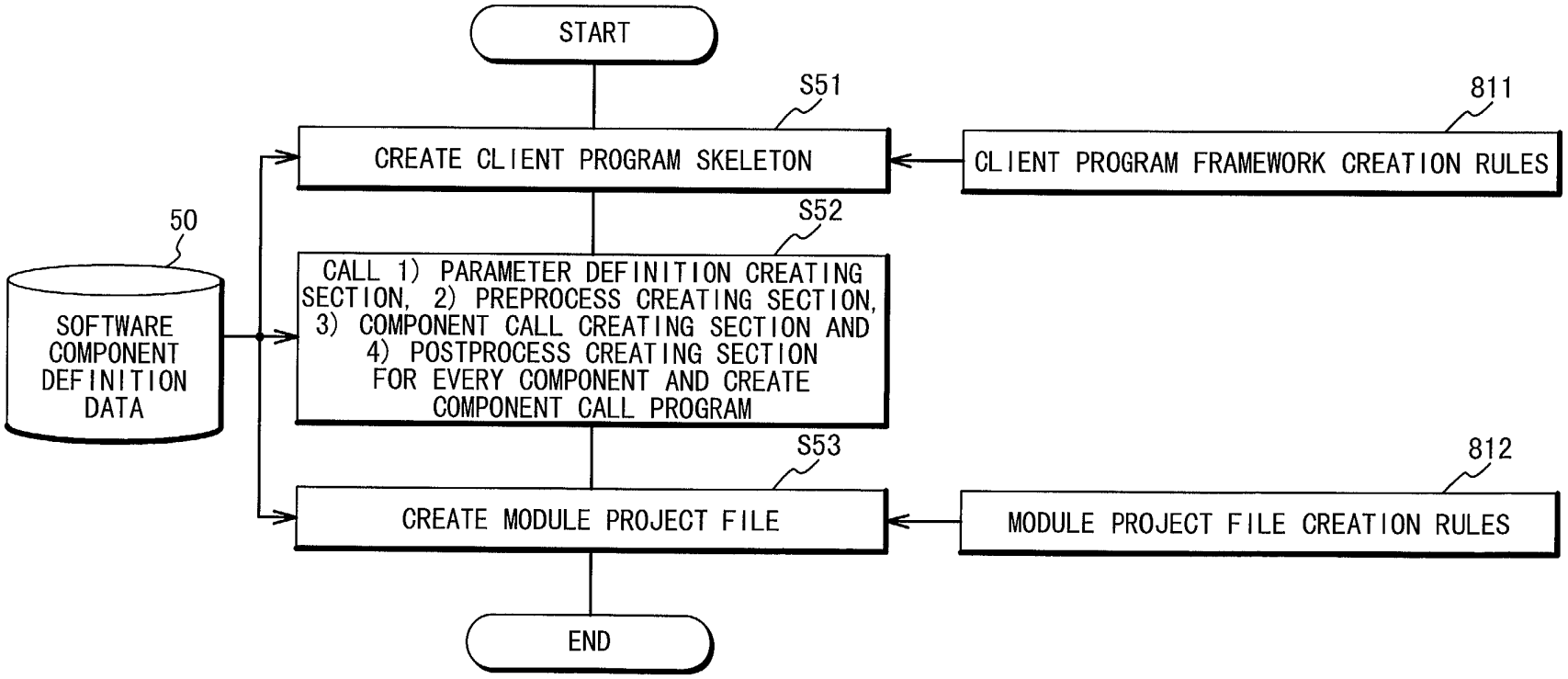

START
S51
811
CREATE CLIENT PROGRAM SKELETON
CLIENT PROGRAM FRAMEWORK CREATION RULES
50
S52
SOFTWARE COMPONENT DEFINITION DATA
CALL 1) PARAMETER DEFINITION CREATING SECTION, 2) PREPROCESS CREATING SECTION, 3) COMPONENT CALL CREATING SECTION AND 4) POSTPROCESS CREATING SECTION FOR EVERY COMPONENT AND CREATE COMPONENT CALL PROGRAM
S53
812
CREATE MODULE PROJECT FILE
MODULE PROJECT FILE CREATION RULES
END

Fig. 16

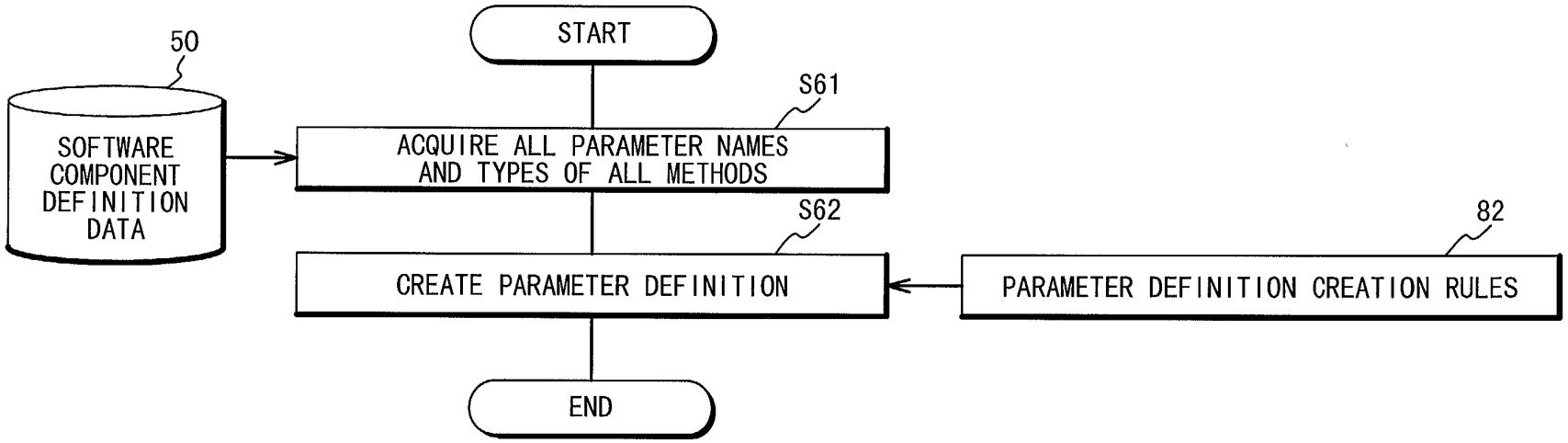

50
SOFTWARE COMPONENT DEFINITION DATA
START
S61
ACQUIRE ALL PARAMETER NAMES AND TYPES OF ALL METHODS
S62
CREATE PARAMETER DEFINITION
82
PARAMETER DEFINITION CREATION RULES
END

Fig. 17

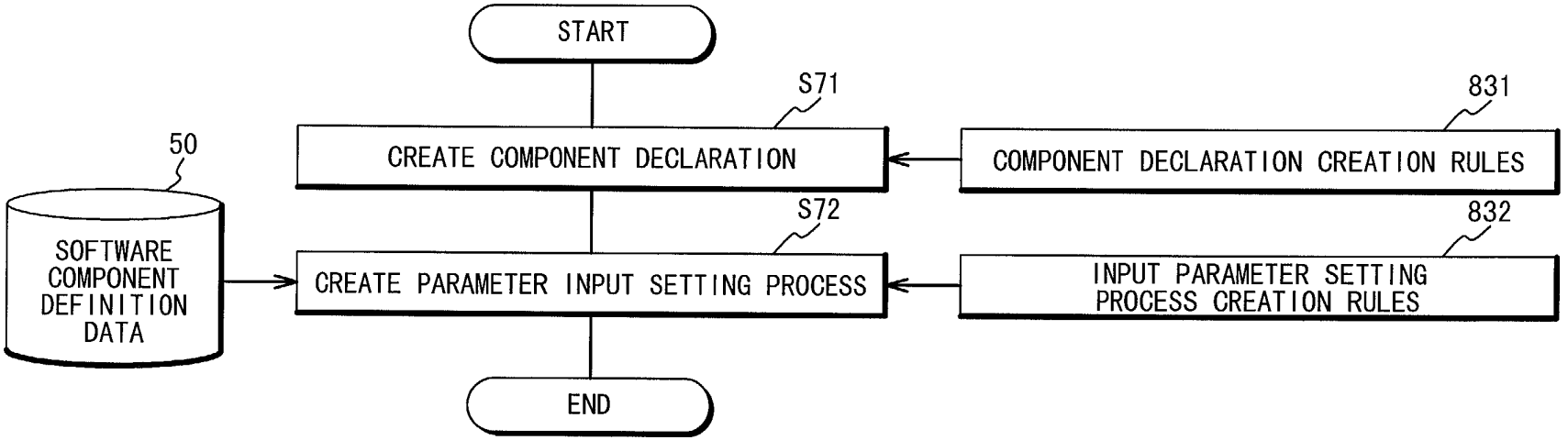

START
S71
CREATE COMPONENT DECLARATION
831
COMPONENT DECLARATION CREATION RULES
50
SOFTWARE COMPONENT DEFINITION DATA
S72
CREATE PARAMETER INPUT SETTING PROCESS
832
INPUT PARAMETER SETTING PROCESS CREATION RULES
END

Fig. 18

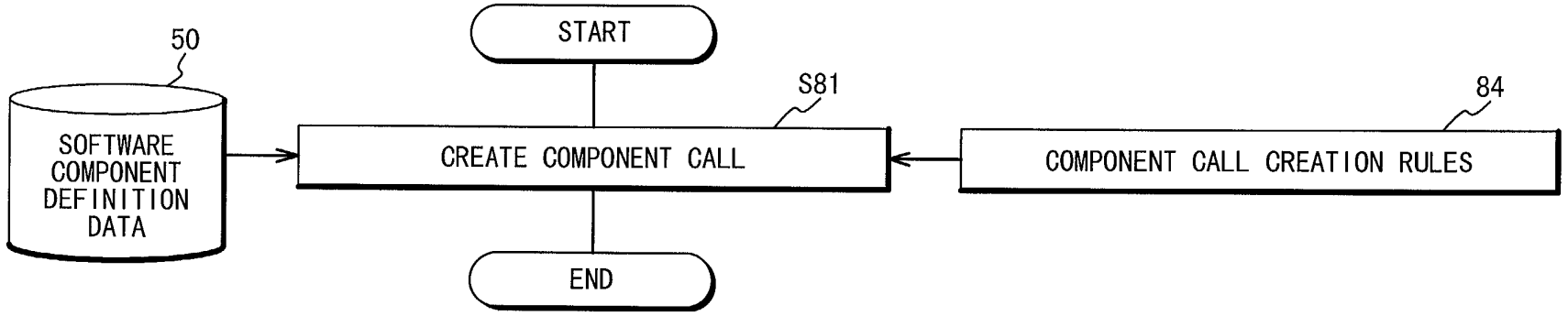
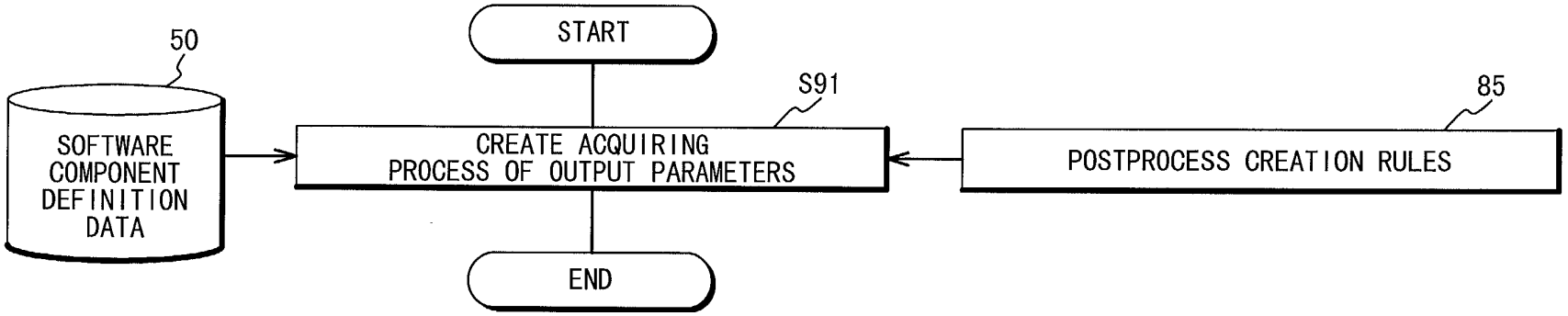

50
START
S81
84
SOFTWARE COMPONENT DEFINITION DATA
CREATE COMPONENT CALL
COMPONENT CALL CREATION RULES
END

Fig. 19


50
START
S91
85
SOFTWARE COMPONENT DEFINITION DATA
CREATE ACQUIRING PROCESS OF OUTPUT PARAMETERS
POSTPROCESS CREATION RULES
END